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CLAIMS

1. A fiber optic probe comprising:

- (a) a probe body having a tip for selectively approaching a device under test;
- (b) an elongate optical fiber extending longitudinally along said body and extending beyond said tip; and
- (c) said probe body being sized such that at least a major portion of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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2. The optic probe of claim 1 further comprising said probe body defining a first terminal portion proximate said tip having a first cross sectional area, a second terminal portion proximate the opposing end of said probe body from said tip having a second cross sectional area, and an intermediate portion located generally half way between said first terminal portion and said second terminal portion having a third cross sectional area, wherein said first cross sectional area is less than said second cross sectional area, and said third cross sectional area is less than said second cross sectional area.

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3. The optic probe of claim 1 further comprising said probe body proximate said tip including an inner material closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer surrounding said inner material, wherein said inner layer of material has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90° than said another layer while being flexed, when said another layer is free from said inner layer of material.

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4. The optic probe of claim 1 further comprising said elongate optical fiber longitudinally adjustable with respect to said body.

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5. The optic probe further of claim 1 comprising said fiber optic probe including a support for selectively maintaining said optical fiber from freely moving longitudinally with respect to said probe body.

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6. The optic probe of claim 1 further comprising a substantial portion of said probe body being readily bendable to adjust the angle of said probe tip with respect to the probe body.

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7. The optic probe of claim 1 further comprising said probe body being sized such that substantially all of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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8. The optic probe of claim 1 further comprising a major portion of said probe body having a substantially constant vertical profile.

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10. A fiber optic probe comprising:

- (a) a probe body having a tip for selectively approaching a device under test;
- (b) an elongate optical fiber extending longitudinally along said body and extending beyond said tip; and
- (c) said probe body defining a first terminal portion proximate said tip having a first cross sectional area, a second terminal portion proximate the opposing end of said probe body from said tip having a second cross sectional area, and an intermediate portion located generally half way between said first terminal portion and said second terminal portion having a third cross sectional area,

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wherein said first cross sectional area is less than said second cross sectional area, and said third cross sectional area is less than said second cross sectional area.

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11. The optic probe of claim 10 further comprising said probe body being sized such that at least a major portion of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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12. The optic probe of claim 10 further comprising said probe body proximate said tip including an inner material closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer surrounding said inner material, wherein said inner layer of material has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90° than said another layer while being flexed, when said another layer is free from said inner layer of material.

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13. The optic probe of claim 10 further comprising said elongate optical fiber longitudinally adjustable with respect to said body.

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14. The optic probe of claim 10 further comprising said fiber optic probe including a support for selectively maintaining said optical fiber from freely moving longitudinally with respect to said probe body.

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15. The optic probe of claim 10 further comprising a substantial portion of said probe body being readily bendable to adjust the angle of said probe tip with respect to the probe body.

16. The optic probe of claim 10 further comprising said probe body being sized such that substantially all of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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17. The optic probe of claim 10 further comprising a major portion of said probe body having a substantially constant vertical profile.

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18. The optic probe of claim 10 further comprising said probe body defining a cavity therein through which said elongate fiber extends, wherein a major portion of said cavity closely surrounds said elongate optical fiber.

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19. A fiber optic probe comprising:

- (a) a probe body having a tip for selectively approaching a device under test;
- (b) an elongate optical fiber extending longitudinally along said body and extending beyond said tip; and
- (c) said probe body proximate said tip including an inner material closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer surrounding said inner material, wherein said inner layer of material has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90° than said another layer while being flexed, when said another layer is free from said inner layer of material.

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20. The optic probe of claim 19 further comprising said probe body being sized such that at least a major portion of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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21. The optic probe of claim 19 further comprising said probe body defining a first terminal portion proximate said tip having a first cross sectional area, a second terminal portion proximate the opposing end of said probe body from said tip having a second cross sectional area, and an intermediate portion located generally half way between said first terminal portion and said second terminal portion having a third cross sectional area, wherein said first cross sectional area is less than said second cross

5 sectional area, and said third cross sectional area is less than said second cross sectional area.

22. The optic probe of claim 19 further comprising said elongate optical fiber longitudinally adjustable with respect to said body.

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23. The optic probe of claim 19 further comprising said fiber optic probe including a support for selectively maintaining said optical fiber from freely moving longitudinally with respect to said probe body.

24. The optic probe of claim 19 further comprising a substantial portion of said probe body being readily bendable to adjust the angle of said probe tip with respect to the probe body.

25. The optic probe of claim 19 further comprising said probe body being sized such that substantially all of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

26. The optic probe of claim 19 further comprising a major portion of said probe body having a substantially constant vertical profile.

27. The optic probe of claim 19 further comprising said probe body defining a cavity therein through which said elongate fiber extends, wherein a major portion of said cavity closely surrounds said elongate optical fiber.

28. A fiber optic probe comprising:
- (a) a probe body having a tip for selectively approaching a device under test;
 - (b) an elongate optical fiber extending longitudinally along said body and extending beyond said tip; and

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(c) said elongate optical fiber longitudinally adjustable with respect to said body.

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29. The optic probe of claim 28 further comprising said probe body being sized such that at least a major portion of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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30. The optic probe of claim 28 further comprising said probe body defining a first terminal portion proximate said tip having a first cross sectional area, a second terminal portion proximate the opposing end of said probe body from said tip having a second cross sectional area, and an intermediate portion located generally half way between said first terminal portion and said second terminal portion having a third cross sectional area, wherein said first cross sectional area is less than said second cross sectional area, and said third cross sectional area is less than said second cross sectional area.

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31. The optic probe of claim 28 further comprising said probe body proximate said tip including an inner material closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer surrounding said inner material, wherein said inner layer of material has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90° than said another layer while being flexed, when said another layer is free from said inner layer of material.

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32. The optic probe of claim 28 further comprising said fiber optic probe including a support for selectively maintaining said optical fiber from freely moving longitudinally with respect to said probe body.

33. The optic probe of claim 28 further comprising a substantial portion of said probe body being readily bendable to adjust the angle of said probe tip with respect to the probe body.

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34. The optic probe of claim 28 further comprising said probe body being sized such that substantially all of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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35. The optic probe of claim 28 further comprising a major portion of said probe body having a substantially constant vertical profile.

36. The optic probe of claim 28 further comprising said probe body defining a cavity therein through which said elongate fiber extends, wherein a major portion of said cavity closely surrounds said elongate optical fiber.

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37. A fiber optic probe comprising:

- (a) a probe body having a tip for selectively approaching a device under test;
- (b) an elongate optical fiber extending longitudinally along said body and extending beyond said tip; and
- (c) said fiber optic probe including a support for selectively maintaining said optical fiber from freely moving longitudinally with respect to said probe body.

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38. The optic probe of claim 37 further comprising said probe body being sized such that at least a major portion of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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39. The optic probe of claim 37 further comprising said probe body defining a first terminal portion proximate said tip having a first cross sectional area, a second terminal portion proximate the opposing end of said probe body from said tip having a second cross sectional area, and an intermediate portion located generally half way between said first terminal portion and said second terminal portion having a third cross sectional area, wherein said first cross sectional area is less than said second cross

5 sectional area, and said third cross sectional area is less than said second cross sectional area.

10 40. The optic probe of claim 37 further comprising said probe body proximate said tip including an inner material closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer surrounding said inner material, wherein said inner layer of material has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90° than said another layer while being flexed, when said another layer is free from said inner layer of material.

15 41. The optic probe of claim 37 further comprising said elongate optical fiber longitudinally adjustable with respect to said body.

20 42. The optic probe of claim 37 further comprising a substantial portion of said probe body being readily bendable to adjust the angle of said probe tip with respect to the probe body.

25 43. The optic probe of claim 37 further comprising said probe body being sized such substantially all of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

44. The optic probe of claim 37 further comprising a major portion of said probe body having a substantially constant vertical profile.

30 45. The optic probe of claim 37 further comprising said probe body defining a cavity therein through which said elongate fiber extends, wherein a major portion of said cavity closely surrounds said elongate optical fiber.

46. A fiber optic probe comprising:

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- (a) a probe body having a tip for selectively approaching a device under test;
- (b) an elongate optical fiber extending longitudinally along said body and extending beyond said tip; and
- (c) a substantial portion of said probe body being readily bendable to adjust the angle of said probe tip with respect to the probe body.

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47. The optic probe of claim 46 further comprising said probe body being sized such that at least a major portion of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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48. The optic probe of claim 46 further comprising said probe body defining a first terminal portion proximate said tip having a first cross sectional area, a second terminal portion proximate the opposing end of said probe body from said tip having a second cross sectional area, and an intermediate portion located generally half way between said first terminal portion and said second terminal portion having a third cross sectional area, wherein said first cross sectional area is less than said second cross sectional area, and said third cross sectional area is less than said second cross sectional area.

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49. The optic probe of claim 46 further comprising said probe body proximate said tip including an inner material closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer surrounding said inner material, wherein said inner layer of material has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90° than said another layer while being flexed, when said another layer is free from said inner layer of material.

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50. The optic probe of claim 46 further comprising said elongate optical fiber longitudinally adjustable with respect to said body.

5 51. The optic probe of claim 46 further comprising said fiber optic probe including a support for selectively maintaining said optical fiber from freely moving longitudinally with respect to said probe body.

10 52. The optic probe of claim 46 further comprising said probe body being sized such that substantially all of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

15 53. The optic probe of claim 46 further comprising a major portion of said probe body having a substantially constant vertical profile.

20 54. The optic probe of claim 46 further comprising said probe body defining a cavity therein through which said elongate fiber extends, wherein a major portion of said cavity closely surrounds said elongate optical fiber.

25 55. A method of testing a device under test comprising:
(a) providing a probe body having a tip for selectively approaching said device under test;
(b) extending an elongate optical fiber longitudinally along said body and extending beyond said tip;
(c) selectively maintaining a major portion of said optical fiber from freely moving longitudinally with respect to said probe body;
(d) longitudinally adjusting a major portion of said optical fiber toward said tip; and
(e) selectively maintaining a major portion of said optical fiber from freely moving longitudinally with respect to said probe body after said longitudinally adjusting.

30 56. The method of claim 44 further comprising:
(a) engaging said probe body with a bending tool;

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- (b) bending a portion of said probe body by cooperation of said probe body and said bending tool; and
- (c) disengaging said probe body from said bending tool.

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57. A method of adjusting a optoelectronic probing device comprising:

- (a) providing a probe body having a tip for selectively approaching a device under test;
- (b) extending an elongate optical fiber longitudinally along said body and extending beyond said tip;
- (c) engaging said probe body with a bending tool;
- (d) bending a portion of said probe body by cooperation of said probe body and said bending tool; and
- (e) disengaging said probe body from said bending tool.

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58. The method of claim 57 further comprising:

- (a) selectively maintaining a major portion of said optical fiber from freely moving longitudinally with respect to said probe body;
- (b) longitudinally adjusting a major portion of said optical fiber toward said tip; and
- (c) selectively maintaining a major portion of said optical fiber from freely moving longitudinally with respect to said probe body after said longitudinally adjusting.

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59. A fiber optic probe comprising:

- (a) a probe body having a tip for selectively approaching a device under test;
- (b) an elongate optical fiber extending longitudinally along said body and extending beyond said tip; and
- (c) a major portion of said probe body having a substantially constant vertical profile.

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60. The optic probe of claim 59 further comprising said probe body being sized such that at least a major portion of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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61. The optic probe of claim 59 further comprising said probe body defining a first terminal portion proximate said tip having a first cross sectional area, a second terminal portion proximate the opposing end of said probe body from said tip having a second cross sectional area, and an intermediate portion located generally half way between said first terminal portion and said second terminal portion having a third cross sectional area, wherein said first cross sectional area is less than said second cross sectional area, and said third cross sectional area is less than said second cross sectional area.

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62. The optic probe of claim 59 further comprising said probe body proximate said tip including an inner material closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer surrounding said inner material, wherein said inner layer of material has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90° than said another layer while being flexed, when said another layer is free from said inner layer of material.

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63. The optic probe of claim 59 further comprising said elongate optical fiber longitudinally adjustable with respect to said body.

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64. The optic probe of claim 59 further comprising said fiber optic probe including a support for selectively maintaining said optical fiber from freely moving longitudinally with respect to said probe body.

65. The optic probe of claim 59 further comprising a substantial portion of said probe body being readily bendable to adjust the angle of said probe tip with respect to the probe body.

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66. The optic probe of claim 59 further comprising said probe body being sized such substantially all of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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67. The optic probe of claim 59 further comprising said probe body defining a cavity therein through which said elongate fiber extends, wherein a major portion of said cavity closely surrounds said elongate optical fiber.

68. A fiber optic probe comprising:

- (a) a probe body having a tip for selectively approaching a device under test;
- (b) an elongate optical fiber extending longitudinally along said body and extending beyond said tip; and
- (c) said probe body defining a cavity therein through which said elongate fiber extends, wherein a major portion of said cavity closely surrounds said elongate optical fiber.

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69. The optic probe of claim 68 further comprising said probe body being sized such that at least a major portion of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

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70. The optic probe of claim 68 further comprising said probe body defining a first terminal portion proximate said tip having a first cross sectional area, a second terminal portion proximate the opposing end of said probe body from said tip having a second cross sectional area, and an intermediate portion located generally half way between said first terminal portion and said second terminal portion having a third cross sectional area, wherein said first cross sectional area is less than said second cross sectional area, and said third cross sectional area is less than said second cross sectional area.

71. The optic probe of claim 68 further comprising said probe body proximate said tip including an inner material closely surrounding said elongate optical fiber, said probe body proximate said tip including another layer surrounding said inner material, wherein said inner layer of material has a greater tendency to maintain its cross sectional area while being flexed up to approximately 90° than said another layer while being flexed, when said another layer is free from said inner layer of material.

72. The optic probe of claim 68 further comprising said elongate optical fiber longitudinally adjustable with respect to said body.

73. The optic probe of claim 68 further comprising said fiber optic probe including a support for selectively maintaining said optical fiber from freely moving longitudinally with respect to said probe body.

74. The optic probe of claim 68 further comprising a substantial portion of said probe body being readily bendable to adjust the angle of said probe tip with respect to the probe body.

75. The optic probe of claim 68 further comprising said probe body being sized such substantially all of said elongate optical fiber is maintained free from freely moving with respect to said probe body.

76. The optic probe of claim 68 further comprising a major portion of said probe body having a substantially constant vertical profile.

77. The optic probe of claim 1 further comprising a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

78. The optic probe of claim 10 further comprising a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

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5 79. The optic probe of claim 19 further comprising a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

10 80. The optic probe of claim 28 further comprising a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

81. The optic probe of claim 37 further comprising a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

15 82. The optic probe of claim 46 further comprising a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

83. The method of claim 55 further comprising a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

20 84. The method of claim 57 further comprising a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

85. The optic probe of claim 59 further comprising a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

25 86. The optic probe of claim 68 further comprising a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

30 87. A fiber optic probe comprising:
(a) a probe body having a tip for selectively approaching a device under test;
(b) an elongate optical fiber extending longitudinally along said body and extending beyond said tip; and

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- (c) a structure that permits selective rotation of at least a portion of said optical fiber with respect to said probe body.

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